

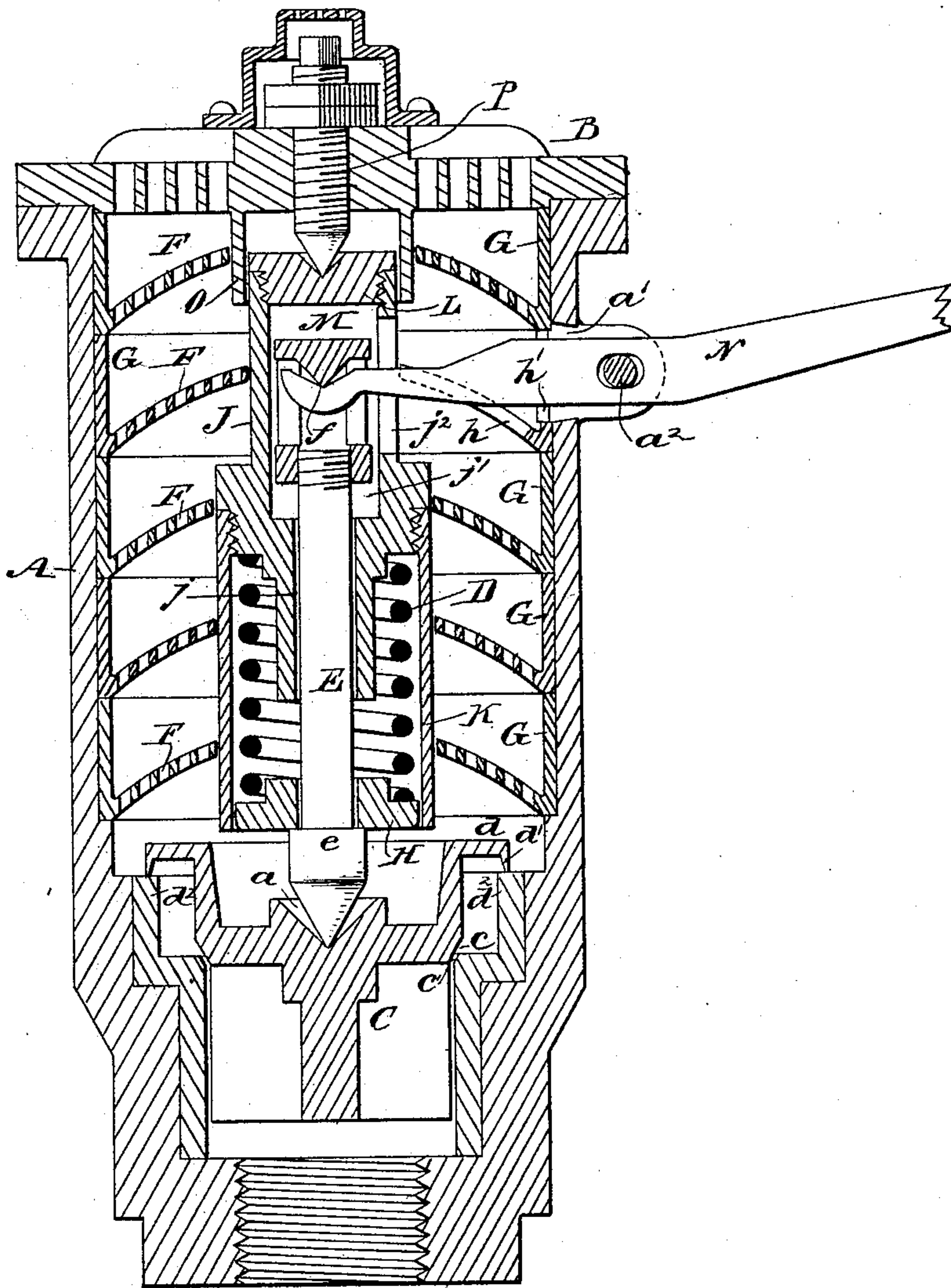
(No Model.)

T. E. HILL.

MUFFLER.

No. 359,389.

Patented Mar. 15, 1887.



WITNESSES:

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INVENTOR:

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UNITED STATES PATENT OFFICE.

THOMAS E. HILL, OF RAHWAY, NEW JERSEY.

MUFFLER.

SPECIFICATION forming part of Letters Patent No. 359,389, dated March 15, 1887.

Application filed November 16, 1886. Serial No. 219,019. (No model.)

To all whom it may concern:

Be it known that I, THOMAS E. HILL, of Rahway, in the county of Union and State of New Jersey, have invented a new and Improved Muffler, of which the following is a full, clear, and exact description.

My invention relates to a muffler for safety and other steam valves, to prevent or materially lessen the disagreeable hissing sound caused by escaping steam; and the invention consists of the construction, arrangement, and combination of the parts of the muffler, all as hereinafter described and claimed.

Reference is to be had to the accompanying drawing, forming a part of this specification, in which the figure is a sectional elevation of my new and improved muffler.

A represents the main casing, closed at the top by a perforated plate, B, and fitted at the bottom with a valve, C, which is constantly pressed to its seat by the action of the heavy coiled spring D, acting on the spindle E, which is stepped in a conical socket, *a*, formed at the top and in the center of the valve C. Above the valve C are fitted in the casing A a number of perforated annular plates, F, which divide and somewhat retard the steam as it passes through the muffler, and thus prevent a disagreeable sound. These perforated plates are made integral with the surrounding flanges G, which are of a diametrical size to fit the interior of the casing A. The valve C is formed with an inclined shoulder, *c*, to fit the valve-seat *c'*; also, with the surrounding flange *d*, formed with the downwardly-projecting lip *d'*, which, when the valve is closed, rests upon the upper valve-seat, *d''*, as shown in the drawing, to effectively cut off the steam and prevent the valve from sticking, and when the valve is lifted by the pressure of steam the lip *d'* also acts to deflect the steam downward and outward, which tends to prevent noise. The spring D acts between the plate H, resting upon the shoulder *e* of the spindle E, and the shell J and the spring and plate H are inclosed by the tube K, screwed upon the lower end of the shell J. The shell J is formed with the passage *j* for the spindle E, and with the chamber *j'*, which is closed at

the top by the screw-plug L. The chamber *j'* incloses the yoke M, screwed upon the upper end of the spindle E, and is slotted at *j''* for the entrance of the inner end of the lever N, which engages with the pivot *f* of the yoke M. The lever N enters the main casing A through the slot *a'*, and is fulcrumed upon the pin *a''* in the ordinary manner, and is for raising the valve C against the pressure of the spring D. One of the perforated plates F and flanges G are slotted, as shown at *h h'*, respectively, to permit the entrance to the main casing and operation of the lever N. The upper end of the shell J is held from lateral displacement by the gland O, formed upon the inner surface of the top plate, B, and in the center of this plate is fitted the screw-bolt P, the inner end of which is stepped in a socket in the upper surface of the screw-plug L, so that by turning this screw-bolt the pressure upon the valve C may be increased or diminished, as desired.

By constructing the muffler as described the same is very effective and simple and cheap, and its parts may be easily separated for repairs, and the adjustments may be easily made. The valve C, formed with the flange *d* and lip *d'*, to rest upon the seat *d''*, deflect the steam; also, the steam is made to act against an increased area after it passes the ground-joint *c'* and strikes the lip *d'*, the effect of which is to overcome the resistance of the spring and raise the valve a considerable distance from the seat *c'*, and the upper valve-seat, *d''*, permitting free escape of steam beyond the capacity of the boiler to generate and doing away with the hissing noise and danger from pressure higher than that at which the valve is set to blow off.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In a muffler, the inner shell, J, formed with the passage *j* entirely through it, and formed with the chamber *j'* and slot *j''*, in combination with the casing K for the valve-spring, and into which casing the casing J is screwed, substantially as shown and described.
2. The top plate, B, formed with the gland

O, in combination with the shell J, spring D, spindle E, plate H, and valve C, substantially as described.

3. In a muffler, the shell J, formed with the
5 passage *j* and chamber *j'*, in combination with the spring D, plate H, spindle E, tube K, and yoke M, attached to the upper end of the spindle, substantially as described.

4. In a muffler, the shell J, formed with the passage *j*, chamber *j'*, and slot *j''*, and closed 10 at its upper end with the plug L, substantially as described.

THOMAS E. HILL.

Witnesses:

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JOHN T. MOORE.